Louisiana Department of Environmental Quality (LDEQ) Office of Environmental Services

STATEMENT OF BASIS

GARYVILLE MAJOR EXPANSION AGENCY INTEREST NO. 3165

MARATHON PETROLEUM COMPANY LLC, LA REFINING DIVISION GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA Activity Numbers: PER20060008, PER20060009, PER20060010, PER20060011, PER20060012 and PER20060013

Draft Permits No. 2640-V5, 2887-V3, 2891-V4, 2893-V3, 3039-V0, and PSD-LA-719

I. APPLICANT:

Company:

Marathon Petroleum Company LLC 4663 West Airline Highway, Garyville, LA 70051

Facility:

Louisiana Refining Division Approximate Coordinates: Latitude 30 deg., 3 min., 3 sec. and Longitude 90 deg., 35 min., 36 sec. Zone 15.

Permit Writer: Syed Quadri

Office of Environmental Services, Permits Division

II. FACILITY AND CURRENT PERMIT STATUS AND PROPOSED PERMIT INFORMATION:

Marathon Petroleum Company LLC (MPC) is a fully integrated petroleum refinery. The refinery processes both foreign and domestic crude oil into a variety of products including, but not limited to, liquefied petroleum gas, motor and heating fuels, asphalt, elemental sulfur, petroleum coke, etc. The crude refining capacity of the refinery will be approximately 425,000 barrels per calendar day after the Garyville Major Expansion (GME) Project. The Standard Classification (SIC) Code is 2911.

The refinery is located on the Mississippi River in St. John the Baptist Parish. The property is originally known as San Francisco plantation and is 34 miles from New Orleans and 46 miles from Baton Rouge.

The facility is expanding its crude oil refining capacity by approximately 180,000 barrels per calendar day. The modification will be issued on its own merits and will affect existing equipment and therefore Part 70 Permit Nos. 2891-V3

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(Storage Tanks), 2893-V1 (Combustion Sources), 2887-V2 (Fugitives and Miscellaneous Sources) and 2640-V4 (Coker Unit, GDU and NDHT). Refining operations typically involve the following four categories: storage, separation, conversion, and blending.

Storage: Petroleum and its products are most commonly stored in steel tanks, either under atmospheric conditions or under pressure, depending upon the boiling point of the material stored.

Separation: Separation operations include distillation (separation by boiling), gravity separation (separation of two immiscible materials of different densities by effects of gravity, either natural or mechanically produced), extraction (removal of a compound from a mixture by contacting the mixture with an immiscible solvent in which the compound is more soluble than it is in the mixture), absorption/adsorption (removal of a compound from a mixture reaction with another compound which is bound in another material).

Conversion: Conversion operations include: dissociation (breaking of large chemical compounds into smaller chemical compounds), rearrangement (rearranging the order and pattern in which carbon and hydrogen atoms are connected in a chemical compound), and chemical combination (the addition of two or more smaller chemical compounds from a larger compound).

Blending: Blending is the final step in the production of finished petroleum products to meet quality specifications and market demands. A large volume operation may include the blending of various gasoline stocks, including alkylates and additives. The blending operation can be accomplished by blending individual components in a single tank or by mixing the components in a piping system.

MPC currently processes crude oil into unleaded, mid-grade, super unleaded, and reformulated gasoline; jet fuel/kerosene; low and high sulfur diesel and No. 6 fuel oil; isobutene; propane; propylene; asphalt; coke and sulfur. Processes used in the refining of these products are atmospheric distillation, vacuum distillation, desalting, fluid catalytic cracking, hydrotreating, asphalt production, hydrogen fluoride (HF) alkylation, reforming, isomerizing and coking. Daily average production includes approximately six million gallons of gasoline and two million gallons of diesel fuel depending on crude types and seasonal demands. The combustion sources at the refinery are fueled by either natural gas, refinery gas or a combination of natural gas and refinery fuel. Other fuels used are purge gas, synthetic gas, diesel, and gasoline but these are not used in heaters and boilers.

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The facility has several emission sources, which are considered insignificant based on size, emission or production rates, type of activities, type of pollutants, and emission limits as per the requirements of LAC 33:III.501.B.5. These sources have been quantified where required and are addressed in the permit application and will also be listed in the permit. MPC is authorized typical emissions, which are associated with routine operations that are under control upon release and are predictable in nature (sampling, startups; shutdowns, cleaning of and/or taking tanks out of service, purging vessels to flare, instrument maintenance, recharging a catalyst, catalyst loading/unloading, platformer catalyst dust removal system, changing filters, changing carbon canisters, MDEA reclaiming, maintenance activities (associated with valves, pumps, knock-out drums, compressors, pipes, flanges, monitors, and exchangers)) and are governed by the Louisiana General Condition No. XVII. These emissions are generally short term and/or intermittent in nature and have no significant impact on air quality. These emissions are quantified and included in the permit.

Early Reduction Program: Title III provides for a voluntary early program. MAP is a participant of this program and is operating under a Permit No. 2209500013 effective date July 25, 1997, to reduce HAP emissions from Platformer Regenerator Vent (Emission Point 62-74) and Fluid Catalytic Cracking Unit Vent (Emission Point 86-94) for non-particulate HAP and particulate HAP, respectively. For these emissions a MACT has been promulgated (40 CFR 63 Subpart UUU) and the facility will be in compliance by April 11, 2005. Cooling Towers (Emission Point 61A-74 thru 61D-74) and Marine Loading Operations (Emission Point 107-90) were also part of the above referenced permit for early reduction program. These emissions are already in compliance with the MACT (40 CFR 63 Subpart Q and Subpart CC) since March 8, 1995 and August 18, 1998, respectively.

Marathon proposes to install and operate new units and processes at the Garyville Refinery under the GME Project. The new units and processes will be as follows: Delayed Coker Unit, Coker Gas Plant, Crude/Vacuum Distillation, Naphtha Hydrotreater, Continuous Catalytic Reformer, Kerosene Hydrotreater Unit, Hydrocracker, Sulfur Recovery Plant (SRU) No. 1, Tail Gas Amine Regeneration for SRU No. 1, Saturates Gas Plant, Sat Propane Merox Unit, Sat Butane Merox Unit, Caustic Unit, Sulfur Recovery Unit No. 2, Tail Gas Amine Regeneration for SRU No. 2, Sour Water Stripper Unit, Boilers, Cooling Tower Unit, Plant Water Treatment, Plant and Instrument Air, Intermediate Product Unit, Fuel Gas Treater Unit, Amine Regeneration Unit, Marine Vapor Combustor, Flare System, Wastewater Treatment Plant Train No. 5, Interconnecting Pipeway, Truck Rack, Blending Facilities, New Storage Tanks, and Hydrogen Plant.

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The existing affected units and processes are as follows: Coker and Gas Plant, Penex Unit, Crude/Vacuum Unit, Gas Oil Hydrotreater, Sour Water/Amine Units, Fluidized Catalytic Cracking Unit (FCCU) and Gas Con Unit, HF Alkylation Unit, Potable Water Unit, Intermediate Storage, Maine Loading Docks, Wastewater Treatment Plant (WWTP), Tank Farm/Piperack, and Thermal Drying Unit. The existing equipment which will be affected by the GME Project will be dealt with by modifying the current Part 70 Operating permits; Permit Nos. 2893-V2, 2891-V3, 2887-V2, and 2640-V4.

The GME Project permit, the PSD permit (PSD-LA-719) and the above referenced existing permits were reviewed for compliance with Louisiana Air Quality Regulations and New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). Prevention of Significant Deterioration (PSD) does not apply. Also based on the First Revised Consent Decree – A NSR Global Settlement (Civil Action No. 01-CV-40119-PVG) between USA EPA and Marathon Ashland Petroleum date of entry November 17, 2005.

Estimated emissions increases from the GME Project including the startup/shutdown operation based on actual to potential and incremental (where no modification is done to the unit or equipment but the emissions are increasing due to the project) in tons per year is as follows:

Pollutant	2004/2005 Average Emissions	Post GME Project Emissions	Incremental Emissions	Change
PM_{10}	64.51	285.03	0.14	285.17
SO_2	31.39	597.05	80.0	597.13
NO _X	254.41	923.41	1.10	924.51
СО	263.54	1589.80	1.46	1591.26
VOC	238.38	901.17	32.34	933.51
H ₂ SO ₄	16.17	37.22	0.00	37.22
H ₂ S	22.74	28.98	0.00	28.98

For netting analysis a contemporaneous period will have to be established. The construction on the GME Project is expected to start in July 2007. Therefore, the beginning of the PSD contemporaneous period will be five years prior to July 2007. The GME Project is expected to startup in September 2009. Therefore, all

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emission changes from July 2002 through September 2009 will be accounted for in the contemporaneous period. The GME project is a major modification even after the netting. Therefore PSD review is required.

Under PSD regulations Best Available Control Technology (BACT) analysis is required for the emissions units or equipment that are physically modified or are new and emit pollutants that increase above the significance levels. In this case BACT analysis is required for all the new equipment installed under the GME Project and is being modified due to the GME Project.

TABLE I	II: SUMMA	RY OF PROPOSED BACT
Source Description	Pollutant	Most Feasible BACT Selected
Process Heater and Boiler	NO _X	ULNB (without preheat) - 0.03 lb/MM BTU
SCR – Voluntary control *		ULNB with SCR for heaters (with preheat) - 0.0125 lb/MM BTU
		ULNB with FGR for Boiler – 0.04 lb/MM BTU
	CO/VOC	Good Combustion Practices using Refinery Fuel Gas
		Compliance with NESHAP, 40 CFR 63, Subpart DDDDD
		CO 400 ppmv
	PM_{10}	Refinery Fuel Gas Combustion
		Proper Burner Design and Operation
	SO_2	Low Sulfur Refinery Fuel Gas – 25 ppmv H ₂ S (Annual Average)
Sulfur Recovery Unit	SO ₂	99.9% Sulfur Conversion Efficiency 99.5% TGTU Thermal Oxidizer
		Conversion Efficiency
		<93.41 ppmv SO ₂ on Dry Basis at Outlet
		(0% Oxygen) Good Work Practices
Sulfur Pits/Storage Tanks/Sulfur Loading	H ₂ S	Degassing of Liquid Sulfur to 15 ppmv H ₂ S
		Recycle of Sulfur Pit emissions

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TABLE I	II: SUMMA	RY OF PROPOSED BACT
Source Description	Pollutant	Most Feasible BACT Selected
TGTU Thermal Oxidizer	NO _X	N O _X 0.20 lb/MM BTU
	CO	Air-Fuel Ratio as Control
	PM ₁₀	Air-Fuel Ratio as Control
	VOC	Air-Fuel Ratio as Control
Storage Tanks	VOC	Compliance with all Applicable Federal & State Regulations
Cooling Towers	PM ₁₀	High Efficiency Drift Eliminators (0.005% drift)
	VOC	LDAR Program with Monthly Monitoring
Fugitive Emissions	VOC	Compliance with Approved Streamlined
		Requirements
		Compliance with LDAR
Emergency Generators	NO_X	Good Operating Practices
	CO	Good Operating Practices
	SO ₂	Low Sulfur Diesel
	PM ₁₀	Good Operating Practices
	VOC	Good Operating Practices
Coking Handling (Conveyors, Coke Pit, Crusher, etc.)	PM10	Combination of Enclosure and Water Spray
WWTP	VOC	Compliance with NSPS, 40 CFR 60, Subpart QQQ and NESHAP, 40 CFR 61, Subpart FF Proper Design
Marine Loading	VOC	Control Emissions for Products Having True Vapor Pressure > 0.5 psia
Marine Vapor Combustor	NO _X	NO _X 0.2 lb/MM BTU
	CO	Compliance with NSPS, 40 CFR 60, Subpart A
	SO_2	H ₂ S at <25 ppm
	PM ₁₀	Compliance with NSPS, 40 CFR 60, Subpart A
	VOC	Compliance with NSPS, 40 CFR 60, Subpart A

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* The voluntary installation of SCRs will reduce the project NO_X emissions increase by approximately 287 tons per year

TABLE VI: SUMMARY OF PROPOSED BACT FOR FUGITIVE EMISSIONS (EQUIPMENT LEAK DEFINITION)

Emission Points – Units 9, 19, 20, 21, 25, 26, 32, 33, 34, 60, 205, 205A, 210, 211, 212, 212A, 214, 215, 220, 221, 222, 222A, 222B, 232, 233, 234, 241, 243, 247, 250, 250A, 259, 260, 263, 265, 267, and 271

Components – Service	BACT Selected Based on Most Stringent Regulation Program and EPA First Revised Consent Decree*
Valves-Light Liquid	500 ppm
Valves-Heavy Liquid	No Visual Leaks
Valves-Gas	500 ppm
Pumps-Light Liquid	2,000 ppm
Pumps-Heavy Liquid	No Visual Leaks
Pressure Relief Valve-Gas	500 ppm
Pressure Relief Valve-	500 ppm
Liquid	
Connectors-Light Liquid	500 ppm
Compressors-VOC	5000 ppm
Closed Vent System	500 ppm

Regulation include LA Refinery MACT Determination of July 26, 1994; LAC 33:III.2121; LAC 33:III.Chapter 51, NSPS, 40 CFR 60, Subpart GGG, NESHAP, 40 CFR 63, Subpart CC; and the First Revised Consent Decree date of entry November 17, 2005

This facility is part of a major source of toxic air pollutants. The Air Toxic Compliance Plan No. 92050 was approved April 13, 1995.

The sources included in this permit are subject to the requirements of National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories, 40 CFR 63, Subpart CC - National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries; NESHAP, 40 CFR 63, Subpart UUU – Petroleum Refineries (Catalytic Cracking and Reforming Units and Sulfur

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Recovery Plants); 40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters; NESHAP, 40 CFR 61, Subpart FF - National Emissions Standard for Benzene Waste Operations; New Source Performance Standards, 40 CFR 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984; New Source Performance Standards, 40 CFR 60, Subpart QQQ - Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems; New Source Performance Standards, 40 CFR 60, Subpart GGG - Standards of Performance for Equipment Leaks of VOC in Petroleum Refinery; LAC 33:III.Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program; LAC 33:III.2121 - Fugitive Emission Control; and the First Revised Consent Decree - A NSR Global Settlement (Civil Action No. 01-CV-40119-PVG) between US EPA and Marathon Ashland Petroleum date of entry November 17, 2005.

Several permits addressing portions of the facility have already been issued. These include:

Permit #	Units or Sources	Date Issued
PSD-LA-548	PSD Permit	3/16/1989
PSD-LA-568(M-1)	PSD Permit	10/25/1991
PSD-LA-640	Coker Project	10/21/1999
2887-V2	Fugitive Emissions and Miscellaneous Equipment	12/16/2005
2891-V3	Storage Tanks	3/31/2006
2893-V2	Combustion Sources	9/6/2006
2640-V4	Coker Unit, GDU, and NDHT	2/22/2006

Permitted Air Emissions

Permitted emissions from the new equipment installed under GME Project and the affected equipment emissions increase due to the GME Project in tons per year are as follows:

<u>Pollutant</u>	Emissions
PM ₁₀	173.72
SO_2	419.74
NO_X	569.71

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<u>Pollutant</u>	Emissions
CO	940.80
VOC	556.67
H ₂ SO ₄	Neg.
H ₂ S	2.81

Prevention of Significant Deterioration Applicability

Prevention of Significant Deterioration (PSD) review is required as the total estimated emissions increase of all the criteria pollutants for the GME Project is greater than the PSD significance level. For the details refer to Part 70 Permit No. 3039-V0 and PSD Permit No. PSD-LA-719.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Part 70 Permit No. 3039-V0.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Part 70 Permit No. 3039-V1

III. Permit Shields

No permit shields are being granted at this time.

IV. Periodic Monitoring

The facility's fugitive emissions monitoring program consolidation approved by LDEQ on April 13, 1995 is being incorporated into the Part 70 permit. Through the fugitive emission monitoring program consolidation, the facility will comply with the monitoring requirements of LA Refinery MACT and other relevant requirements as stated in the permit application. A specific condition will be incorporated in the permit to reflect this consolidation.

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V.	Applicability and Exemptions of Selected Subject Items ¹	
	Is see "Early Reduction Plan" in Part 70 Permit No. 2887-V3, Part 70 Condition No. 3	

Unit or Plant	Programs Being	Stream	Stringent
Site	Streamlined	Applicability	Program

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VII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Disulfide (H₂S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air

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Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4) , Ethane (C_2H_6) , Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO₂) - An oxide of sulphur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.